

Report

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Reporting Scientist : [REDACTED]
AFS Reference : AFS-1089-19
Date of Report : 27th of November 2019

This report relates to the examination of an exhibit and is a summary of the findings of the specific examination.

Should I be required to attend court then it will be necessary for me to provide a full witness statement that complies with the Criminal Procedure Rules [2015] Parts 16 and 19; Criminal Justice Act 1967, s. 9, Magistrates' Courts Act 1980, s.5B.

Qualifications and Experience

I specialise in the field of forensic anthropology and archaeology and am currently a Forensic Anthropologist and Archaeologist with Alecto Forensic Services.

I am a Level III Forensic Anthropologist (FA-III) certified by the Royal Anthropological Institute of Great Britain and Ireland, and a Practitioner Level (PCIfA) Archaeologist accredited by the Chartered Institute for Archaeologists.

Further to these accreditations, I am a member of the Home Office Disaster Victim Identification response team for Forensic Anthropology, and a Trustee on the Board of Trustees for the British Association for Biological Anthropology and Osteoarchaeology (Representative from a Professional Organisation). In addition, I am a member of the British Association for Forensic Anthropology (BAFA), the British Association for Human Identification (BAHID), and an Affiliate of The Chartered Society of Forensic Sciences.

Following on from my master's degree, I undertook an internship in the Forensic Science Section of the Office of the Prosecutor of the International Criminal Court in the Hague and, subsequent to this, I volunteered as a Forensic Anthropologist for the Committee on Missing Persons in Cyprus. In addition, as a member of the Cranfield Recovery and Identification of Conflict Casualties team, I assisted in the identification of WWI British soldiers for the Commonwealth War Graves Commission in Arras, France. I have conducted archaeological fieldwork and participated in archaeological research excavations in

Alecto Forensic Services [REDACTED]
[REDACTED] [REDACTED] [REDACTED] [REDACTED]

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Australia, Turkey, and Malawi, and I have also worked as a commercial field archaeologist in the United Kingdom.

As a Forensic Anthropologist and Archaeologist, I support Alecto Forensics casework and have provided assistance in investigations for multiple police forces and other agencies involving murder; suspicious and unnatural deaths; fatal fires; a transportation accident in international waters; missing persons; surface scatter scenes involving human remains; and clandestine grave search, location and recovery. I was also an Assistant Forensic Anthropologist within the Forensic Anthropology team for the Grenfell Tower incident during 2017 and assisted in the production of the anthropology reporting phase of the incident in 2018-2019.

Request and Information

The Alecto Forensic Services (AFS) Bone Identification Service received a request from [REDACTED] Eurofins Forensic Services, on Thursday, 21st of November 2019. The request related to the identification of bones that had been found at an apparent archaeological site by Eurofin's client, [REDACTED] (hereinafter called 'the client'). On behalf of his client, [REDACTED] enquired whether the bones could be identified as human or non-human in origin and, further to this, if the bones were identified as human, if time-since-death could be determined through radiocarbon dating analysis.

[REDACTED], Lead Anthropologist and Archaeologist of AFS, advised [REDACTED] that a physical examination of the bones would be required. The client provided the following information which was received in an email sent by [REDACTED] dated 1336 hrs on 21st of November 2019:

- 1. The presumed time period for the bones according to our research is during the Second World War. In regard to the context this means that these bones potentially belong to victims of the Nazi regime. The bones were found by people from our team.*
- 2. It is possible that the bones were burned. We were only interested in a DNA analysis in regard to the question whether these bones are human or belong to some animal. If you can answer this question without DNA analysis – even better.*

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3. *The final report/statement does not fulfil any specific requirements apart from stating the results of your work.*

██████████ requested through ██████████ that his client provide further important information regarding this submission:

- The location where the bones were found.
- The context in which these bones were found.
- Who recovered these bones and under whose authority?

At the time of writing this report, the client has not disclosed this information to AFS.

I was asked by ██████████ to conduct an anthropological examination of the bones in order to identify them as being human or non-human in origin.

At the time of writing this report, AFS have not been informed whether any of these bones will be submitted for radiocarbon dating.

Anthropology Examination

The bones were received at 1540 on Monday, 25th of November 2019 at AFS, ██████████. They were delivered under the FedEx Tracking Number 8113 2293 2150.

My examination took place between 1430 and 1620 on Tuesday, 26th of November 2019, at the AFS Laboratory. Please note that ██████████ was present during this examination.

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Purpose of Anthropology Examination

The purpose of my examination was to provide:

- An anthropological examination of the bones
- Identify – where possible – if the bones were human or non-human

If the bones were determined to be human to provide:

- A calculation on the minimum number of individuals
- An inventory and description of the condition of the human remains
- A biological profile of the individual(s) and – where possible – to ascertain the biological parameters of ancestry, sex, age-at-death, stature, and any individuating features
- An assessment of the skeletal tissues for ante- and peri-mortem trauma and any post-mortem modifications to the remains that may be present
- Advice as to which bone(s) should be submitted for radiocarbon dating if this is required

Please note that labelled diagrams of the bones of the human body have been provided in Appendix One. The figures that are referenced within this report are provided in Appendix Two, whilst the references that have been used in this report can be found in Appendix Three.

Examination Results

Inventory and Condition

Ten bones were received within the package from the client of Eurofins Forensic Services.

I can confirm that all ten bones are human in origin. This identification is based on anatomical features, morphology, shape, size, and structure of these bones (White *et al.*, 2012).

For identification purposes, each of the bones were numbered from 1 through to 10 (Appendix Two, Figure 1). Please refer to the table on the following page for the skeletal inventory.

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Table 1: Skeletal Inventory

Number	Identification	Condition of the Bone(s)	Maximum Fragment Measurements
1	Fragment of occipital bone (single bone situated at the posterior and inferior part of the cranium) from the right side, with a partial lambdoid suture and, on the endocranial surface, a partial cruciform eminence	Cremated Thermal shrinking, warping, and fracturing, incomplete	48mm x 42.9mm
2	Fragment of right ischium (inferior portion of the innominate bone) which includes a section of the lateral border of the obturator foramen	Cremated Thermal shrinking, warping, and fracturing, incomplete	43.3mm x 26.7mm
3	The body of a thoracic vertebra (thoracic vertebrae are located in the mid-region of the spinal column)	Cremated Thermal shrinking and fracturing, incomplete	35.6mm x 33.8mm
4	Fragment of unsided distal tibia ('shin' bone) with partial articular surface	Cremated Thermal shrinking, warping, and fracturing, incomplete	62.7mm x 21.2mm
5	Fragment of unsided tibia shaft	Cremated Thermal shrinking, warping, and fracturing, incomplete	82.6mm x 18.2mm
6	Fragment of unsided tibia shaft	Cremated Thermal shrinking, warping, and fracturing, incomplete	75.9mm x 12.8mm

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Number	Identification	Condition of the Bone(s)	Maximum Fragment Measurements
7	Fragment of left tibia shaft	Cremated Orange staining Thermal shrinking, warping, and fracturing with sharp margins, incomplete	58.6mm x 17.8mm
8	Right patella ('knee cap')	Cremated Thermal shrinking and fracturing, incomplete	39.5mm x 15.3 mm
9	Fragment of unsided distal tibia with partial articular surface	Cremated Thermal shrinking, warping, and fracturing, incomplete	54.6mm x 42.4mm
10	Fragment of unsided proximal head of the humerus (the upper ball joint of the humerus)	Cremated Thermal shrinking, incomplete	38.9mm x 32.7mm
There was also a small amount of fragmentary bench debris that included very small particles of bone (Appendix Two, Figure 2).			

Please note that one of the bones that was photographed and included in the original email received by [REDACTED] on Thursday, 21st of November 2019, was not received by AFS (Appendix Two, Figure 3).

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Summary of Findings

Minimum Number of Individuals

There were no additional or duplicated skeletal elements, however, due to the small number of bone fragments and given the lack of contextual and depositional information, it is not possible to comment on whether these remains may be commingled (belonging to more than one individual) or whether they come from one single individual.

However it can be stated that the remains belong to at least ONE individual.

Biological Profile

Sex

The estimation of sex was not undertaken as there were no available skeletal elements that could be assessed for this biological parameter (Işcan and Steyn, 2013; Buikstra and Ubelaker, 1994).

Age-at-death

Given the fragmentary nature of the bones, the estimation of age-at-death was limited (Işcan and Steyn, 2013). The only assessment that could be made was that the bones all appear to be from an adult – this is based on bone size, morphology and skeletal development (fusion) (Cunningham *et al.*, 2016; Işcan and Steyn, 2013).

Stature

The estimation of stature was not undertaken due to the fragmentary nature of the bones and the shrinkage that was observed on the bones associated with the cremation process (Işcan and Steyn, 2013).

Ancestry

The estimation of ancestry was not undertaken as there were no available elements that could be assessed for this biological parameter (Işcan and Steyn, 2013).

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Pathology and Trauma

The right lateral side of the single thoracic body (bone no. 3) appeared to be compressed (Appendix Two, Figure 4). Given that this bone has been cremated and there no further vertebral bodies or associated skeletal elements present, it is not possible to say whether this compression has an ante mortem pathological aetiology (Waldron, 2008; Mann & Hunt, 2005).

No peri mortem trauma was observed on the bones.

Post Mortem Modification

All ten bone fragments that were examined have been affected by thermal damage and are cremated.

As bone is exposed to heat, an increase in intensity and duration of heat causes the organic and inorganic phase of the bone structure and the bone chemistry to change resulting in colour and structural alterations (Schmidt and Symes, 2008). All of the bones were calcined, that is to say, they were of grey through to white colouration (Appendix Two, Figure 5) (*ibid.*). The bones have also undergone shrinking, warping, and fracturing due to thermal exposure (Appendix Two, Figure 5) (Schmidt and Symes, 2015).

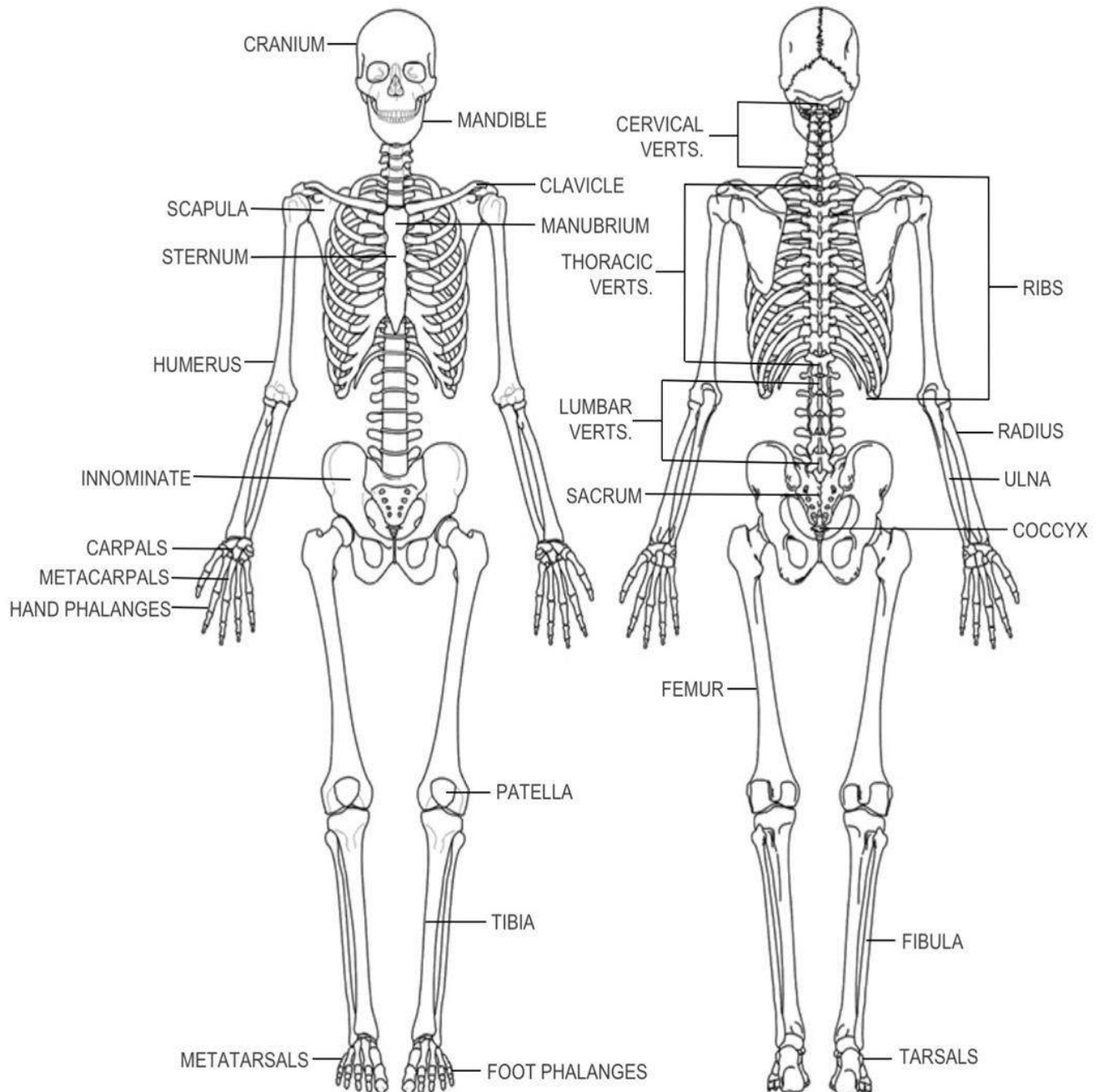
Packaging

Following my examination, I packaged each of the ten bones in ten single zip-lock plastic bags, and packaged the bench debris in an eleventh zip-lock bag (Appendix 2, Figure 6). I then re-packaged the eleven plastic bags into a cardboard box ready for collection and return to Eurofins Forensic Services.

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Appendix One



Anterior (left) and posterior (right) views of the adult human skeleton in anatomical position, illustrating the position and the names of the bones of the body.

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Appendix Two



Figure 1: The ten bone fragments that were received by AFS. Source: AFS, IMG_4352. This image has been cropped from the original.

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Figure 2: Bench debris including very small particles of bone. Source: AFS, IMG_4350. This image has been cropped from the original.



Figure 3: This bone fragment was not received as a part of the package that was delivered to AFS. Source: The original image was included in a Bone Identification Request received from [REDACTED] on 20th of November 2019. This image has been cropped from the original.

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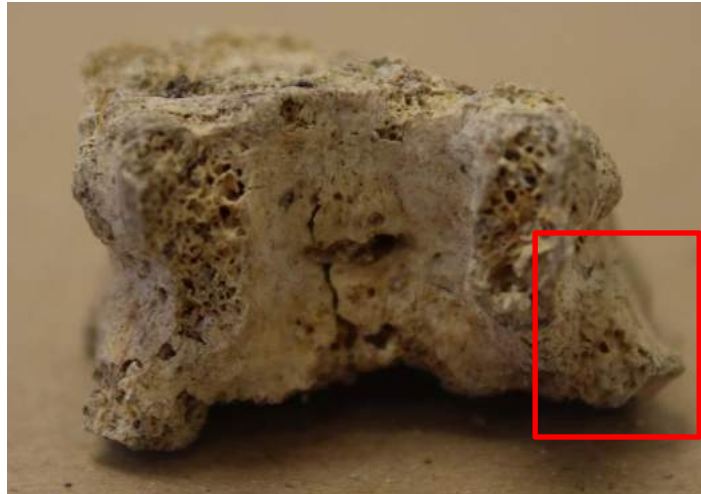


Figure 4: Posterior view of the thoracic vertebral body showing the compression to the right lateral side (indicated by the red rectangle). Source: AFS, IMG_4361. This image has been cropped from the original.



Figure 5: Endocranial (inner cranial surface) view of the fragment of occipital (cranial) bone indicating the colour, shrinking, warping, and fracture alterations caused by thermal damage. Source: AFS, IMG_4354. This image has been cropped from the original.

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Figure 6: Following the examination, each of the ten bones were packaged separately and labelled, the bag at the top of the image contains the bench debris. Source: AFS, IMG_4385. This image has been cropped from the original.

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Appendix Three

References

Buikstra, J.E. and Ubelaker, D.H. (1994) *Standards for Data Collection from Human Skeletal Remains*. Proceedings of a seminar at the Field Museum of Natural History. Arkansas Archaeological Survey Research Series, 44.

Işcan, M.Y. and Steyn, M. (2013) *The Human Skeleton in Forensic Medicine*. 3rd edition. Charles C. Thomas: Springfield.

Mann, R.W. and Hunt, D.R. (2005) *Photographic Regional Atlas of Bone Disease: A Guide to Pathologic and Normal Variation in the Human Skeleton*. Charles C Thomas: Springfield.

Schmidt, C.W. and Symes, S.A. (2008) *The Analysis of Burned Human Remains*. 1st edition. Academic Press: London.

Schmidt, C.W. and Symes, S.A. (2015) *The Analysis of Burned Human Remains*. 2nd edition. Academic Press: London.

Waldron, T. (2008). *Palaeopathology*. Cambridge: Cambridge University Press.

White, T.D., Black, M.T. and Folkens, P.A. (2012) *Human Osteology*. 3rd edition. Elsevier: Oxford.